

REMARKS

Claims 1-11, 21-27 and 29-36 are pending in this application.

Claims 1-11, 21, 24-27, and 29-36 have been rejected as unpatentable under 35 U.S.C. § 103(a) over Dickman (U.S. Patent No. 7,066,960) in view of Stubstad et al. (U.S. Patent No. 3,867,728). The Office argues that Dickman teaches a disc prosthesis that meets most of the limitations of these claims except for the requirement that "fibres are provided on the whole of the flexible portion and the at least one less flexible portion." The teachings of Stubstad et al. are relied on as teaching that it would be obvious to provide the less flexible portions of Dickman with fibers to enhance tissue growth.

Although Stubstad et al. does teach a spinal disc prosthesis that may comprise a resilient core 15 and at least one outer or covering elements 11, 12 that may contain a fabric layer 21 (Fig. 2), it does not teach a prosthesis according to the present invention where the fibres are provided around the whole of the flexible portion and the at least one less flexible portion. Fig. 2 of Stubstad et al shows that elements 11 and 12 may be separately covered by fabric to improve the ingrowth of tissue. However, the fabric does not surround the whole of the flexible portion and the less flexible portions, but merely the top and bottom elements. After the top and bottom covering elements of Stubstad et al. are covered by fabric, the resilient core and covering elements are joined together by means of vulcanization (see for example, col. 5, lines 1-5) or by stitching.

At least one of the functions of the recited fibres on the whole of the flexible portion and the at least one less flexible portion of the present invention is to reinforce or hold these portions together (see, for example, Fig. 2 and page 8, lines 18-22 of the present specification). The covering element of fibers or fabric according to Stubstad et

al., on the other hand, is not provided to hold together the resilient core and covering elements, but is merely there to provide a surface for ingrowth of cells. Accordingly, the modification of the teachings of Dickman according to the teachings of Stubstad et al. as suggested by the Office would not lead to the claimed invention. Accordingly, for this reason alone, this rejection should be withdrawn.

Claim 7 requires that the "flexible portion has swelling characteristics comparable to those of a natural intervertebral disc." The Office has pointed to Dickman (col. 7, lines 35-37) as providing a similar teaching. Applicants disagree. It is respectfully submitted that the cited teaching in Dickman relates only to the elastic properties of the natural disk and not the swelling properties as recited in claim 7. This claim additionally distinguishes the claimed invention from the teachings of the prior art.

Claims 24-26 and 34-36 recite various features of the fibres provided on the whole of the flexible portion and at least one less flexible portion by winding or knitting, further distinguishing the claimed invention. While Stubstad et al. teaches that a mesh of Dacron filaments can be wound around the resilient core 15, the top and bottom elements 11 and 12 are provided with a fabric surface by folding a mesh layer on the surfaces and stitching all elements of the prosthesis together (see, e.g., col. 7, line 38 to col. 8, line 41). Winding or knitting the fibres around the whole of the flexible portion and the at least one less flexible portion is not only a different technique of securing the elements of the recited prosthesis together than is taught by the prior art, but inherently results in a final product that has a different structure than the prior art. For this additional reason, the rejection of these claims should be withdrawn.

Claims 32 and 33 recite characteristics of the recited fibres that are not taught by the prior art. Although the Office seems to suggest that the fiber material of Dickman "is considered capable of absorbing hydrogel monomers," the Office has not cited any basis for this conclusion. Dickman does disclose (col. 7, lines 40-45), that "liquid may be soaked in the fabric at the central region of the substrate in a liquid or semi-liquid or gelatinous state intermixed with and impregnated into the fabric." This simply means that liquid can occupy the space in the pores that are present in a woven or knitted fabric. This is completely different to the requirement of claim 32 where the fibres themselves are capable of absorbing hydrogel monomers. Similarly, the prior art cited in this rejection does not teach or suggest that fibres made of polyurethane would be a choice available to one skilled in the prosthesis art, so there is no reason to select such a material for this purpose. For these additional reasons, the rejection of claims 32 and 33 should be withdrawn.

Neither Dickman nor Stubstad et al., alone or in combination, teach the method of claims 22 and 23.

Claims 1, 21 and 22 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over Dickman in view of Stubstad et al., Bao et al. (U.S. Patent No. 5,047,055) and Stoy et al. (U.S. Patent No. 6,264,951). These claims are considered to be patentable for the same reasons advanced above with respect to claim 1. As Bao et al. and Stoy et al. fail to teach or suggest any of the features of claim 1 not taught by Dickman or Stubstad et al., this rejection should be withdrawn. In addition, as to claim 22, although Stoy et al. discloses (col. 7, lines 12-16) that the implants should be made smaller through dehydration before implantation, this teaching relates only to a

prosthesis for a nucleus, and not (as in the present invention) to a prosthesis for a combination of nucleus and annulus. In the case of a nucleus prosthesis according to Stoy et al., the annulus is the natural annulus that is kept in place, and the nucleus prosthesis is supported by the remaining annulus. There is no basis in the cited prior art teachings that going from a nucleus prosthesis according to Stoy et al. to a full prosthesis according to the present invention would be obvious. Accordingly, the rejection of claim 22 should be withdrawn for this additional reason.

Prompt and favorable reconsideration is requested.

Please grant any extensions of time required to enter this response and charge any additional required fees to Deposit Account 06-0916.

Respectfully submitted,

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